

WHAT IS CLAIMED IS:

1. An ink stick for use in a solid ink feed system of a phase change ink printer, wherein the solid ink feed system includes a shaped guide rail, the ink stick comprising:

a three dimensional ink stick body having a guide surface and a plurality of side surfaces that intersect the guide surface; and

a shaped guide element formed in the guide surface of the ink stick body;

wherein at least one of the side surfaces has a predetermined non-planar key shape so that the ink stick can be inserted in an insertion direction into the solid ink feed system through an opening having a corresponding non-planar key shape;

wherein the shaped guide element is shaped for guiding the ink stick in a feed direction along a defined path in the ink stick feed system;

wherein the feed direction is substantially perpendicular to the insertion direction; and

wherein the shaped guide element has a shape that complements the shape of the shaped guide rail in the solid ink feed system.

2. The ink stick of claim 1, wherein the side surfaces are oriented in planes that are substantially different from the plane of the guide surface.

3. The ink stick of claim 1, wherein each of the side surfaces has a plane that is substantially different from the plane of the guide surface.

4. An ink stick for use in a solid ink feed system of a phase change ink printer, wherein the solid ink feed system includes an elongate shaped guide rail extending in a feed direction, the ink stick comprising:

a three dimensional ink stick body having a guide surface and an insertion perimeter;

a shaped guide element formed in the guide surface shaped to interact with the elongate shaped guide rail of the solid ink feed system for guiding the ink stick along the guide rail;

wherein the ink stick insertion perimeter is in a plane substantially perpendicular to an insertion direction;

wherein the insertion direction is substantially different from the feed direction.

5. The ink stick of claim 4, wherein the shaped guide element is non-planar.

6. The ink stick of claim 5, wherein the ink stick shaped guide element has a shape substantially matching the shape of the elongate shaped guide rail of the solid ink feed system.

7. A method of inserting an solid ink stick into a feed channel of a solid ink printer, the method comprising:

providing an ink stick having an ink stick insertion perimeter;  
aligning the ink stick insertion perimeter with an insertion opening of a key plate;  
inserting the ink stick in an insertion direction through the insertion opening;  
aligning a shaped guide element on the ink stick with a guide rail in the feed channel;  
moving the ink stick in a feed direction in the feed channel, wherein the feed direction is different from the insertion direction;  
wherein aligning the inks stick insertion perimeter with the insertion opening comprises aligning at least three non-linear key element shapes; and  
wherein at least one of the non-linear key element shapes is oriented at least partially transverse to the feed direction.

8. The method of claim 7, wherein the insertion direction is substantially perpendicular to a plane containing the ink stick insertion perimeter.

9. The method of claim 7, wherein at least one of the non-linear key element shapes is oriented substantially parallel to the feed direction.

10. A solid ink feed system for a phase change ink jet printer, the feed system comprising:

a longitudinal feed channel;

a first longitudinal guide rail extending along a length of the feed channel in a feed direction; and

a key plate having an insertion opening through it to admit an ink stick in an insertion direction into the longitudinal feed channel;

an ink stick having a guide surface;

wherein:

the feed direction is different from the insertion direction;

the ink stick has a longitudinal guide element formed on a guide surface; and

the shape of the ink stick guide element and the shape of the feed channel guide rail substantially complement one another, so that when the ink stick is placed in the feed channel, the feed channel guide rail and the ink stick guide element interact to guide the ink stick along the feed channel.

11. The solid ink feed system of claim 10, wherein the width of the longitudinal guide rail is substantially less than the width of the feed channel;

12. The solid ink feed system of claim 10, wherein:

the guide rail includes a protrusion; and

the ink stick guide element is a recess into the guide surface of the ink stick.

13. The solid ink feed system of claim 10, wherein:

the guide rail includes a recess; and

the ink stick guide element is a protrusion on the guide surface of the ink stick.

14. The solid ink feed system of claim 10, wherein the ink stick has an insertion perimeter shape that is substantially the same as the shape of the insertion opening in the key plate.

15. The solid ink feed system of claim 10, wherein the feed direction is substantially perpendicular to the insertion direction.